

**PERFORMANCE SPECIFICATIONS**  
for  
**Model B800R Roll Balancing Machine**

## 1 General Description

### 1.1 Balancing Machine

The Model B800R is a dynamic horizontal axis super critical (above resonance) Balancing Machine that utilizes velocity transducers to measure the displacement generated by unbalance. The B800R is designed to accurately balance rolls up to 13.25 m (43.5 ft) in length and 36,287 kg (80,000 lbs) in weight. The Drive System consists of a DC variable speed motor with a belt drive system and has regenerative braking. The machine can be mounted to most standard industrial floors without modifications.

### 1.2 Instrumentation

The Model B800R Balancing Machine can utilize an array of IRD Balancing instruments depending upon the application. There is an array of instrumentation choices to meet your individual balancing needs, all instruments include printer capability. Specifications on the instrument are separate from these performance specifications.

## 2 Specifications

### 2.1 Rotor Mass and Unbalance Limitations

2.1.1 Maximum Weight Capacity	36 000 kg	(80,000 pounds)
2.1.2 Maximum Weight per Support*	20 000 kg	(45,000 pounds)
2.1.3 Minimum Weight	227 kg	(500 pounds)
2.1.4 Minimum Achievable Residual Unbalance ( $U_{mar}$ ) per plane	.000 127 mm (.000 005 in) mass center displacement. To find minimum achievable residual unbalance in g-mm (ounce-inches), add 578,340 g (20,400 ounces) to weight of rotor and support bearings used in ounces (grams) then multiply by .000 127 mm (.000 005 inches).	
2.1.5 Unbalance Reduction Ratio	95%	

*\*Total rotor weight not to exceed amount listed in paragraph 2.1.1 above.*

## 2.2 Rotor Dimensions

2.2.1 Maximum radius over whip indicator	229 mm†	(9 in)†
	†Plus distance from flat mounting surface to centerline of shaft	
2.2.2 Maximum diameter driven by belt	1524 mm	(60 in)
2.2.3 Minimum diameter driven by belt	102 mm	(4 in)
2.2.4 Maximum distance between support pedestal centerlines	13 259 mm	(43.5 ft)
2.2.5 Minimum distance between support pedestal centerlines	533 mm	(21 in)
2.2.6 Height of flat mounting surface from floor	1022 mm	(40.25 in)

## 2.3 Drive System

2.3.1 Belt Drive	Continuous Flat Belt	
2.3.2 Belt Width	76 mm	(3 in)
2.3.3 Motor	500V DC Variable Speed, Drip Proof Frame	
2.3.4 Motor Speed	125 to 1750 rpm	
2.3.5 Supply Voltage	460 VAC +/- 10%, 3 Phase, 50/60 Hertz, 75 Amps.	
2.3.6 Rated Power	37.3 kW at 1750rpm	(50 HP)
2.3.7 Rated Torque	203 N·m	(150 lb·ft)
2.3.8 Brake	Regenerative	
2.3.9 Drive Pulley Diameter	305 mm	(12 in)
2.3.10 Balancing Speed	Variable from 250 to 4000 RPM Lower speeds obtainable with reduction in minimum achievable residual unbalance (Section 2.1.4). Balancing Speeds also subject to drive pulley diameter/rotor diameter, etc.	
2.3.11 Max Belt Speed	1676 m/min	(5500 ft/min)
2.3.12 Motor and Controls	To NEMA, AMT and NEC Standards	

## 2.4 Drive Motor Torque Characteristics

2.4.1 Acceleration and Constant Speed Torque	203 N·m at 1050-1750 rpm	(150 lb·ft)
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## 2.5 Air Supply Requirement

2.4.3 For Air Belt Tension Assembly	480 to 690 kPa at 0.85 m <sup>3</sup> /h (70 to 100 psi at 0.5 cfm)
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## 3 Machine Components

### 3.1 Machine Base

3.1.1 Total Length	13 716 mm	(45 ft)
4 Section Lengths	3353 mm	(11 ft)
1 Section Length	305 mm	(1 ft)
3.1.2 Width	1219 mm	(4 ft)
3.1.3 Height	260 mm	(10.25 in)

3.1.4 Installation Requirements

Foundation: Normal 152 mm (6 in) thick reinforced concrete floor. No special heavy concrete substructure required as long as floor is stable and capable of supporting the weight of the balancing machine with maximum capacity rotor.

Base Installation: Base to be lagged to the floor with standard expandable concrete anchors through mounting holes provided (Installation drawing provided).

Control console does not require lagging.

### 3.2 Work Supports

- 3.2.1 Two super critical (above resonance) pedestals with flat mounting surface for roller bearing assemblies, V-Blocks, pillow blocks, and/or special mounting arrangements.
- 3.2.2 Two electrodynamic, high output, moving coil, vibration transducers with calibration traceable to the National Institute of Standards and Technology (USA). (Transducers are furnished with Balancing Instrument.)
- 3.2.3 Height adjustment provides 89 mm (3.5 in) of adjustment for difference in journal diameters – manually operated (one pedestal only).
- 3.2.4 Position adjustment along base to accommodate various rotor lengths - manually operated.

### 3.3 Belt Drive Assembly

- 3.3.1 Drive motor with drive and idler pulleys.
- 3.3.2 Variable belt tensioning provided by air actuated cylinders that automatically maintain constant belt tension.
- 3.3.3 Air pressure filter, regulator, and gages for belt tension.

### 3.4 Control Console

- 3.4.1 Worktable support surface for instrumentation.
- 3.4.2 Variable Speed DC Drive Controller with control components and circuit breaker completely wired ready for operation on 460 VAC, 3 Phase, 50/60 Hertz.
- 3.4.3 Motor controls mounted on the console include stop, run/jog push buttons, speed control, and power indicator.
- 3.4.4 Accessory outlet for Instrumentation.
- 3.4.5 Motor encoder output for Balancing Instrument

### 3.5 Instrumentation

- 3.5.1 Refer to the specification sheet for the selected IRD instrument.

### 3.6 Standard Accessories

- 3.6.1 One (1) height adjusting tool
- 3.6.2 All associated cables and air hoses.
- 3.6.3 Two (2) lengths of drive belts
- 3.6.4 Operation manual
- 3.6.5 Motor and drive controller manuals

#### 4 Paint

Standard color –Pedestals, Console, and Base

Warm Gray - Pantone 7C

#### 5 General Arrangement

See drawing D93154

##### 5.1 Overall Dimensions

5.1.1 Length	15 850 mm	(52 ft)
5.1.2 Width	3734 mm	(147 in)
5.1.3 Height	1219 mm	(48 in)

##### 5.2 Weight and Shipping Dimensions

5.2.1 Net Shipping Weight Domestic	6441 kg	(14,200 lbs)
Export	7893 kg	(17,400 lbs)

##### 5.2.1 Shipping Dimensions (4 Containers)

5.2.1.1 Crate 1	2631 kg	(5800 lbs)
Length	4267 mm	(168 in)
Width	1727 mm	(68 in)
Height	2134 mm	(84 in)
5.2.1.1 Crate 2	2041 kg	(4500 lbs)
Length	3531 mm	(139 in)
Width	1524 mm	(60 in)
Height	762 mm	(30 in)
5.2.1.1 Crate 3	1270 kg	(2800 lbs)
Length	3810 mm	(150 in)
Width	1524 mm	(60 in)
Height	1372 mm	(54 in)
5.2.1.1 Crate 4	1950 kg	(4300 lbs)
Length	4206 mm	(166 in)
Width	2134 mm	(84 in)
Height	1372 mm	(54 in)

## 6 Optional Modifications or Accessories

- 6.1 Roller Work Support assemblies for balancing rotors on their own journals. 36,287 kg (80,000 lb) capacity P/N E17004
- 6.1.1 Supplied with standard 260 mm (10.25 in) diameter x 133 mm (5.25 in) wide, 36,287 kg (80,000lb) capacity (per pair) rollers.  
Available with optional 159 mm (6.25 in) diameter x 73 mm (2.875 in) wide, 22,680 kg (50,000lb) capacity (per pair) rollers.
- 6.1.2 Journal Diameters Accomodated 51-508 mm (2-20 in)
- 6.1.3 Maximum Diameter over Whip Indicator 1778 mm (70 in)
- 6.1.4 Maximum Difference in Journal Diameters 152 mm (6 in)
- 6.2 V-Blocks to support rotors in their own bearings. P/N E26337
- 6.3 Work support pivot assemblies to provide pivoting action for rotors that are balanced in their own bearings or in optional V-blocks. P/N E26338
- 6.4 Base Extension to increase bearing separation.
- a. 1.2 m (4 feet)
  - b. 2.1 m (7 feet)
  - c. 3.4 m (11 feet)
- 6.5 Spare parts kit – drive belts, cables, hoses, drive and control fuses, operation manual, etc.
- 6.6 Rotor safety hold-down bracket with counter roller to constrain rotor from vertical movement while balancing.
- 6.7 Pedestal risers to accommodate larger rotor diameters. Standard riser heights:
- a. 305 mm (12 in)
  - b. 457 mm (18 in)
  - c. 610 mm (24 in)
- 6.8 Transformer, for voltages other than standard 460 VAC, with 3668 mm (12ft) interconnecting cable to control console.
- 6.9 Larger drive motor and controller with regenerative braking.
- 6.10 Totally enclosed fan cooled drive motor frame. Not available on motors 37.3 kW (50 HP) and above with a base speed higher than 1750.
- 6.11 Larger diameter drive pulleys for increasing the surface speed of rotors.

**6.12 Stationary optical whip indicator**

P/N E33881

6.12.1 Readout is mils peak to peak. Angular position and amplitude displayed on balancing instrument.

6.12.2 Range 3.81 mm (150 mils) peak to peak

6.12.3 Power 105 to 125 VAC 50/60 Hz at 3/8 Amp

6.12.4 Output Sensitivity 2.4 mv rms/mil peak to peak  $\pm 15\%$

6.12.5 Frequency Response 300 to 1200 rpm, flat when amplifier switch is in 10ms range.

1200 to 2500 rpm, flat when amplifier switch is in 1ms range.

6.12.6 Resolution 0.05 mm p-p (0.2 mils p-p) 10ms range (switch in junction box).

0.13 mm p-p (0.5 mils p-p) 1ms range (switch in junction box).

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Standard machine configuration described, optional accessories or special order items may alter the specifications.  
Specifications in accordance with ISO 2953 abbreviated form.

Specifications are subject to change without notice.